

Chapter 19

Lifestyle Medicine in clinical practice

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Introduction

Lifestyle Medicine is an exciting emerging specialty in medicine which offers a usefully different approach to patient care. However, as a healthcare concept it is not so new. Indeed, it is thought that Hippocrates identified the connection between lifestyle and health two and a half thousand years ago: ‘In order to keep well, one should simply avoid too much food, too little toil’. Over the last decade or so, an abundance of relevant scientific research has been published and this evolving discipline has gained considerable momentum. This chapter will provide an introduction to the power and necessity of this fresh approach as well as an up-to-date briefing of the evidence crossing all six pillars of Lifestyle Medicine.

What is Lifestyle Medicine?

Lifestyle Medicine, as defined by the American College of Lifestyle Medicine is the use of evidence-based therapeutic interventions including a whole-food, plant-predominant eating pattern, regular physical activity, restorative sleep, stress

management, avoidance of risky substances, and positive social connections. These six Lifestyle Medicine pillars should be used as the primary modality in order to prevent, treat, and in some cases, reverse chronic disease. Its goal, as Dr Saray Stancic describes in her book *What’s Missing From Medicine* is to ‘live an optimal existence, free of chronic disease and pain and suffering’. Indeed, a Lifestyle Medicine approach has been shown to extend life expectancy by a number of years – allowing people to live in better health, with less disability and improved quality of life.

Lifestyle Medicine interventions encompass the aforementioned six pillars of health, and a Lifestyle Medicine consultation should include an assessment of all these domains – with a thorough exploration into patients’ habits, health goals, life priorities and environmental and social influences.

The Lifestyle Medicine approach can be practiced by many different members of the multidisciplinary team. It is a cross-cutting approach relevant to all areas of medicine and healthcare. Evidence supports its application in the prevention and treatment of many non-communicable diseases as well as its efficacy for all people, of all ages, genders and different social

and cultural backgrounds. Lifestyle Medicine practitioners are able to effectively deal with the root cause of disease rather than simply managing patients' symptoms. By tackling the underlying causes, they are able to target the lifestyle-associated pathogenesis of the most common chronic diseases. Research has demonstrated that unhealthy lifestyles cause dysbiosis, epigenetic changes, cellular stress and injury. These processes perpetuate inflammation which in turn feeds back into this mechanistic pathway and contributes further to the development of many common chronic diseases such as obesity, type 2 diabetes, cardiovascular disease, and certain cancers. It is plain that lifestyle can be both the cause and cure of disease and so, by adopting a lifestyle-first approach, it is possible to interrupt these unhealthy processes and change the trajectory of our patients' health outcomes.

Lifestyle Medicine is neither alternative or complementary. It is an evidence-based approach which itself endorses the use of more conventional allopathic practices. Lifestyle Medicine practitioners support the appropriate use of medication, surgery and vaccinations, for example, but the emphasis is shifted by the practitioner largely onto the patient to make lifestyle changes as a means of first-line management. This is both a meaningful and rewarding shift in practice for both the clinician and the patient.

The burden of chronic disease and its connection with lifestyle habits

The prevalence of chronic disease is rapidly increasing worldwide, placing a heavy burden not only on the individuals affected but also on our health and social care systems. Chronic diseases are, presently, the leading cause of morbidity and mortality and also responsible for the majority of healthcare costs.¹

Three in five global deaths are attributed to four major non-communicable diseases (NCDs) – cardiovascular disease, cancer, chronic lung diseases and diabetes.² And it is estimated that 80% of chronic diseases in high-income countries are themselves due to four lifestyle behaviours: an unhealthy diet; lack of physical activity; excess alcohol consumption; and tobacco smoking.³

It is interesting to think about the impacts of these behaviours from a Lifestyle Medicine perspective. Indeed, this was the viewpoint taken in one of the most important studies demonstrating the power of a Lifestyle Medicine approach. In an aptly-titled study 'Healthy living is the best revenge' 23,000 participants were followed for an eight-year period. The study evaluated compliance with four health lifestyle habits: not smoking, 30 minutes of exercise five days a week, maintaining a healthy weight (BMI <30) and eating a plant-predominant diet. Participants who adhered to all four healthy lifestyle factors had an overall 78% decreased risk of development of chronic disease even after adjusting for age, sex, educational and occupational status.⁴ The study clearly demonstrated that lifestyle interventions can have a very significant impact on disease prevention. And this was not an isolated finding – other studies along with the World Health Organisation have reported similar outcomes: 80% of heart disease, stroke and type 2 diabetes and 40% of cancers could be prevented, primarily with improvements to diet and lifestyle.

Facilitating healthy change

In order to help the average person implement healthier lifestyle habits we need trained, certified and enthusiastic Lifestyle Medicine practitioners to embrace this challenge of tackling chronic disease. Although many healthcare professionals are already aware of the importance of counselling patients on such habit changes and the importance of healthy lifestyles, they often lack the time and

confidence to do so. The majority do not always screen for unhealthy behaviours or provide the necessary recommendations to facilitate positive change.⁵

Healthcare professionals hold some of the most trusted positions in society and are viewed as credible sources of health information. As Lifestyle Medicine practitioners, we are placed perfectly to offer patient-centred, evidence-based dietary and other lifestyle interventions to help our patients make optimal choices in order to improve their health, as well as the health of the planet.

Wider societal changes alongside supportive government policies should play an important role in facilitating healthier choices. This, however, often takes time and so, the growing influence of Lifestyle Medicine and aligned practitioners taking immediate action with their patients is crucial. We need not rely on or wait until wider changes become commonplace before we move forward with our patients.

A more ethical approach

As healthcare professionals we are obliged to work with integrity, compassion and uphold a strong moral compass. This becomes relevant to the discussion of Lifestyle Medicine as the emerging research seeks to challenge current consensus around the most effective approach to treating chronic disease. For example, the American College of Lifestyle Medicine position paper on type 2 diabetes demonstrated that clinical remission of the disease is possible with adequate lifestyle management and that this, therefore, should be the end goal to strive for. Several years prior, the Counterpoint study detailed a whole food plant-based diet as the preferred dietary intervention for type 2 diabetes and stated ‘diabetes reversal should be the goal in the management of type 2 diabetes’. This is crucially important as it redefines our current understanding of what ‘chronic’ disease means. It highlights the case that if we are

not at least to offer our patients with type 2 diabetes this treatment, we could be considered to be practicing unethically. Maximilian Andreas Storz proposed exactly this and suggested that doctors should be offering plant-based diets to all those suffering with chronic conditions. By not advocating for this diet, we could cause harm to our patients as well as the health of the planet.⁶

Pillar 1: Plant-based nutrition

Unhealthy diets alone are the top cause of death and disability globally, accounting for 20% of all deaths.⁷ Eating patterns high in meat, dairy and processed foods have fuelled our current global health crisis with rising rates of non-communicable diseases. These diseases include obesity, cardiovascular disease, type 2 diabetes, certain cancers and Alzheimer’s dementia – all of which have been shown to be preventable, treatable and in some cases reversible with a whole food plant-based diet and healthy lifestyle changes. Whilst all six pillars of Lifestyle Medicine are relevant in the management of these conditions, plant-based diets are a crucial component in the treatment plan. Yet the pillar of nutrition is probably the most challenged and hotly debated area of Lifestyle Medicine. Nevertheless, there is an overwhelming amount of evidence which supports a whole food plant-based diet as one of the healthiest choices we can make in order to tackle the root cause of these diseases. It is also a low-risk and cost-effective approach. A whole food plant-based diet is nutrient dense and rich in phytochemicals and fibre and as such, has been shown to enhance immunity, lower inflammation and optimise the gut microbiome. It is key to any sustainable and effective Lifestyle Medicine intervention.

Although many misconceptions remain, major dietetic organisations around the world, including the British Dietetic Association in the UK have confirmed that a 100% plant-based diet can meet

nutritional requirements for all stages of life from birth through to old age. Indeed, the impact of a whole food plant-based diet is so significant that national and international guidelines now recommend plant-based diets for prevention of cancer⁸ and the treatment of type 2 diabetes.⁹

Whilst many doctors do not receive adequate nutrition education, the majority do agree on the importance of nutrition and health. Only a minority, however, are confident in counselling their patients on the subject.¹⁰ Nevertheless, they are also in a strong position to interpret emerging scientific data on plant-based diets and translate this into the delivery of effective nutritional advice. Whilst doing so, it is imperative to tailor their advice to their patients' religious and cultural backgrounds and be considerate of any financial implications or issues with accessibility.

It is crucial for us to recognise the responsibility we hold as healthcare professionals to educate our patients about the evidence base linking our food choices, our physical health, and the health of our planet. Guiding our patients towards a plant-based lifestyle provides an opportunity to work in partnership with our patients and to empower them on their health journey. Lifestyle Medicine practitioners should be able to communicate clearly on the subject of dietary change whilst assessing patients for stages of behaviour change. By doing so, we can improve our patients' adherence to a healthier and more sustainable dietary pattern whilst improving the trajectory of their health.

Pillar 2: Exercise

The impact of physical activity

Exercise has a profound effect on all body systems. The beneficial impact of physical activity in terms of primary and secondary prevention for many chronic diseases is highly significant. Moreover, an increased level of physical fitness is known to reduce the risk of premature death from all causes.¹¹

The converse is true whereby inadequate levels of exercise are well-established as a major risk factor for many chronic diseases and premature mortality. Indeed, it is recognised as the fourth risk factor for global mortality according to the World Health Organization.¹²

Physical activity assessments and exercise prescriptions should be regarded as a crucial component of any Lifestyle Medicine consultation. In times of increasing health expenditures, exercise is an important low-cost evidence-based intervention that can benefit those of all ages and genders, for those at any body weight and fitness levels. Health care spending is known to increase as patient activity levels decrease.

The number of medical conditions with evidence regarding the benefits of regular exercise are extensive. The common lifestyle conditions such as type 2 diabetes, cardiovascular disease and obesity may seem obvious inclusions but the conditions with recognised benefits extend far beyond those to also include other frequently seen conditions such as chronic fatigue, osteoporosis, low back pain, chronic pain and premenstrual syndrome, stress, depression and anxiety.¹³

Exercise also promotes restorative sleep, longevity and improved quality of life and has been associated with reduced risk of age-related cognitive decline and improved outcomes in cancer patients.¹⁴

Sedentary problems

Even though the research regarding the benefits of exercise are well-established and the mechanisms well-understood, the reality is that the majority of the population are not exercising routinely. In England only 21% of men and 18% of women aged 65–74 achieve the current national physical activity recommendations, dropping to 9% and 6% respectively for those aged 75 and over.¹⁵

Additionally, sedentary behaviours have been on the rise across many populations in the last

few decades as many spend longer driving, sitting, watching TV and working at the computer. Recent estimations report a total number of 9–10 sitting hours per day in middle aged and older US adults.¹⁶

There is a growing body of evidence which confirms that these prolonged periods of sitting are detrimental to health. Sedentary behaviour is now considered an independent risk factor and contributes to an increased risk of all-cause mortality, cardiovascular disease, certain cancers, type 2 diabetes, depression, anxiety and perceived tiredness.

As we guide our patients with exercise recommendations we should also, therefore, be helping them to set intentions to break up extended sitting periods. Suggestions such as standing desks and short bursts of movements (such as climbing the stairs or walking lunch breaks) offer feasible and convenient strategies to increase movement through the day.

Exploring the barriers to exercise

In order to maximise the effectiveness of our counselling and guidance on exercise, we need to gently explore our patients' barriers to exercise. Helping our patients to identify these, with a compassionate and non-judgemental approach, can improve self-management and optimise compliance with exercise recommendations.

There are many perceived barriers to exercise which vary from patient to patient according to cultural backgrounds, socioeconomic status as well as baseline physical and emotional levels of wellbeing. Conversations around overcoming these barriers are an important part of any Lifestyle Medicine assessment.

Prescribing exercise

Developing an exercise prescription for patients is a valuable tool for any healthcare professional.

Whilst all patients should be screened for contraindications to start exercising, the majority of patients are able to start at least with low levels of physical activity. These prescriptions should be tailored to age, personal preferences, cultural background, socioeconomic status and local facilities. They should also be reviewed regularly in order to ensure the prescription remains relevant, personalised, safe and clinically effective. Ideally, a multidisciplinary team should be involved wherever possible.

Pillar 3: Sleep

Sleep is a state of rest defined as a 'rapidly reversible state of immobility with greatly reduced sensory responsiveness'. It is a complex but necessary biological function for every creature in the animal kingdom. And although it is thought we spend up to a third of our lives sleeping, many remain apathetic, underestimating its importance and failing to prioritise healthy sleep habits into their lives.

Not so long ago, scientific explanations were lacking as to why we sleep. However, emerging research has shown, unequivocally, that healthy sleep is fundamental to our physical and emotional wellbeing as well as our ability to function optimally throughout the day. It has two dimensions: duration (quantity) and depth (quality) and both offer a crucial component to true health by mitigating the risk of a wide spectrum of morbidities.

Although the amount of sleep can vary across different stages of the life cycle, the amount of sleep needed for healthy adults, as recommended by the National Sleep Foundation, is 7–9 hours per night⁴³ Research confirms that inadequate sleep – of both duration and quality – is associated with serious health implications such as mood disorders, decreased cognition including memory, suppressed immune response, heart disease and fatigue-related accidents. Although a

crucial component to health, it is typically under-reported by patients in the medical setting.¹⁷ Inquiries into sleep habits and daytime energy levels should, therefore, be included in all lifestyle consultations.

There is an abundance of evidence showing that the number of average sleep hours are declining, especially in Western societies. Increasing trends in sleep disorders such as insomnia have been well documented over the last few decades with psychological and physical health disorders contributing in almost equal proportions. Similar data is also emerging from low-income countries, reporting sleep problems being especially prevalent in women over the age of 50.¹⁸ Insufficient sleep can be considered then, as a global and growing public health epidemic which will have significant social and economic implications.

The health consequences of insufficient sleep

Insufficient sleep has been shown to cause a 13% increased risk of premature mortality when comparing individuals who slept for less than six hours per night to those who achieved 7–9 hours per night.¹⁹ This included all causes of death, including fatal car accidents, strokes, cancer and cardiovascular disease.

Unhealthy sleep has also been associated with an increased risk of cardiovascular disease,²⁰ type 2 diabetes,²¹ weight gain and suppression of the immune system. Increased risk of cancer development has also been an important finding whereby insufficient sleep has been linked with a decreased response in natural killer cells, increased sympathetic nervous activity and levels of inflammation. These findings are robust enough for the World Health Organization to officially classify night-time shift work as a 'probable carcinogen'.

Emerging research has also shown that adequate sleep allows for the recently discovered

'glymphatic system' to clear toxic waste and replenish the brain. As such, insufficient sleep is now recognised as a key determinant of Alzheimer's dementia.

Insufficient sleep has also been linked with the development of certain mood disorders, increased frequency of migraines, clinical burnout, work accidents, personal injury as well as poor decision making and slow reaction times, low moral awareness and inattention.¹⁷

Sleep cycles

Understanding the sleep cycles can allow for important insights into patient sleep patterns as part of an overall sleep assessment.

Healthy sleep cycles last approximately 90 minutes and are characterised by two different types: NREM (non-rapid eye movement) and REM (rapid eye movement). There are three stages of NREM and one stage of REM and a healthy night of sleep will allow for 4–6 completions of these cycles with non-memorable short 1–2 minute periods of waking every couple of hours. Most sleep occurs in the NREM stages with REM sleep comprising only a quarter of total night's sleep, mostly occurring in the second half of the night.

Sleep assessment

A mini sleep assessment may include typical hours of sleep on weekdays and weekends, perceived sleep quality, frequency of daytime fatigue, frequency and type of sleep disturbance and attitude towards sleep. It is important to screen for any 'red flags' such as less than seven hours sleep, one or more hours weekday-weekend difference, shift work, poor sleep quality despite more than seven hours spent in bed or more than nine hours sleep.

A sleep diary is an important tool for both practitioner and patient. It can raise awareness of helpful or unhelpful behaviours and provide

insight into the patients' routines. Details such as time to bed and waking, ease of falling asleep, number of waking periods, reasons for sleep disturbance and feelings when waking (e.g., refreshed, fatigued) should be recorded for seven nights in a row.

Recommendations

In order to achieve restorative sleep, attention must first be drawn to the other pillars of Lifestyle Medicine. Eating a healthy plant-based diet, exercising regularly, effectively managing stress and avoiding alcohol for example all have important consequences on the quality and quantity of sleep.

Additionally, the patient's sleep environment is of importance and should be kept cool, dark and as quiet as possible.

Patients should be encouraged to develop a consistent bedtime routine which may include relaxing rituals such as a warm bath, listening to soft music, breathing exercises or meditations. Other helpful sleep hygiene practices are shown below but will depend on patients' individual preferences.

Good sleep hygiene practices:

- avoiding eating too late
- avoid alcohol
- dim lights 1–2 hours before bedtime
- avoid screens (television, iPad or other devices) at least one hour before bed
- relaxing ritual 30 minutes before bed
- keep the bedroom for sleeping and sex only
- keep your sleep and wake times consistent seven days/week.

Pillar 4: Stress

Stress consists of behavioural and physiological responses that occur when we perceive a threat to our existence or wellbeing. Many report they are

'stressed' when in actual fact they are experiencing nervous tension. This is a common and important element of the stress experience, but it is possible to be stressed without feeling tension. Similarly, it is possible to feel tension without experiencing stress. In either respect stress can be regarded as a choreographed state of events and is not merely a psychological experience. Stress leads to the disruption of homeostasis and if chronic, leads to ongoing allostatic overload and consequently, creates a risk to health.

The harmful effects of stress on disease

Scientific research has firmly established the relationship between stress and disease with demonstrable effects on the cardiovascular, gastrointestinal and neurohormonal systems as well as a dampened immune response. These occur because of various changes such as elevated cortisol and norepinephrine levels, changes in serotonin levels and altered cytokine activity. Consequently, it can be understood that stress has an important impact on all systems of the body – albeit not in equal proportions.

Current technology allows for the analysis of the effect of stress on the body at the molecular level. Telomere caplets at the end of each chromosome assist in the regulation of appropriate genetic replication. Each time a cell divides, telomere base pairs shorten, resulting in a lessening of their effective regulation of normal cell replication. Chronic stress has been demonstrated to result in such 'shortening damage' of telomeres²² which itself has been associated with a hastened pace of ageing, increased incidence of disease, malignancy and poor survival.²³

Screening for stress

Actively creating opportunities within the Lifestyle Medicine consultation to screen for

patient stress is of utmost importance. It is prudent to consider whether stress is influencing certain behaviours, for example the use of alcohol, drugs or interfering with relationships or occupation. The severity should be determined and individualised management options for effective stress management discussed in detail.

Stress-management techniques

Whilst acute stress in life is unavoidable, living with chronic stress can be actively managed. Helping our patients incorporate stress management techniques into their lifestyle often offers great benefits. It is true that there is a genetic component to pathological stress which can shape an individual's stress response but even the most resilient will benefit from effective stress-management techniques. Many stress management modalities are low-cost and low-risk and empower the patient to regain some control over their lives. Further, identifying stresses in patients' lives provides a useful opportunity to explore the connection between emotions and health.

That being said, it is important to help our patients realise that some stress can be considered useful. Indeed, when we recognise that it can help us achieve goals, meet deadlines and perform well in different scenarios, we can change our mindset around the stress experience. Our bodies do need some amount of stress in order to activate certain biological pathways. However, the benefits of this exists only up to a point after which excessive strain can quickly lead to reduced activity, fatigue, and ultimately poor health outcomes.

We can also encourage our patients to think specifically around their psychological, behavioural and physical signs associated with their stress response. When we help our patient tune in to these, they can develop awareness when stress starts to build and proactively turn to constructive approaches to managing stress.

Common stress-management techniques

Tai chi, meditation, mindfulness, progressive muscle relaxation, gratitude and journaling are all examples of helpful practices to manage stress.

Although these methods can all be beneficial, they are highly individualised with preference for different options often depending on age, gender, cultural backgrounds and spirituality. Other therapeutic techniques could include art therapy, music therapy, time in nature, knitting, reading, writing or any hobby as deemed by the patient to be stress reducing.

At times of stress, we should aim to continue to apply the other pillars of Lifestyle Medicine. In reality, however, stressful events can fuel risky health behaviours such as drinking or smoking and efforts to maintain healthy lifestyles often fall neglected. This makes it even more urgent that we work with our patients proactively. In order to effectively reduce stress, we should encourage them to make healthy decisions that will support their health.

Pillar 5: Risky substances

Smoking

The health risks of smoking cigarettes are very well known yet it remains a significant cause of morbidity and mortality and is responsible for 7 million deaths globally each year. In 2019, the UK office for national statistics reported a falling number of adult smokers as well as a decline in the average number of cigarettes smoked per day. Worryingly however, the highest proportion of smokers were reported in young adults aged 25–34.²⁴ Additionally, there was a 1% increase in the number of hospital admissions attributable to smoking and no improvements relating to the number of deaths.²⁵

As such, it remains a very real public health concern.

Adverse effects on health

Tobacco smoke is a complex mixture of thousands of toxic compounds many of which are carcinogenic.²⁶ Its use negatively affects every organ of the body and its detrimental effects on the cardiovascular and respiratory system are well known. The number of diseases known to be caused by tobacco use continues to increase and now also includes a wide range of ailments including: age-related macular degeneration, diabetes, colorectal cancer, liver cancer, adverse health outcomes in cancer patients and survivors, tuberculosis, erectile dysfunction, oro-facial clefts in infants, ectopic pregnancy, rheumatoid arthritis, inflammation, and impaired immune function.²⁶

Exposure to second-hand smoke

The health effects of second-hand smoke are also considerable and as such, there is considered to be no risk-free level of second-hand smoke exposure with even periods of brief exposure being linked to detrimental health outcomes for infants, children and adults alike.²⁷

Tobacco control efforts

It took a number of years for the medical community to embrace the scientific research linking cigarette smoking to adverse health outcomes. Nevertheless, education and smoking cessation campaigns as well as smoke-free policies and other legislative steps have allowed for some progress. The public image around smoking has certainly shifted since tobacco control efforts first emerged and in many countries, the majority of people do think unfavourably of smoking in public places.

Helping our patients quit

The benefits of stopping smoking are extensive and will be gained by all at any stage in the

smoking history. The effects are, however, thought to be notable in younger smokers who have the most to gain from increased life expectancy following quitting. Short-term benefits of quitting include lower blood pressure levels and reduced risk of infection. Long-term health benefits are considerable and include reduced risk of cardiovascular disease, lung disease and various cancers.

Smoking is a major modifiable risk factor for disease and all healthcare professionals should be working to help our patients quit. Although increasing in popularity, e-cigarettes or 'vaping' lack evidence as an effective smoking cessation strategy and long-term safety effects are not known. Other smoking cessation therapies are better established and can take various forms – as guided by patient preference or other individualised factors – and may include brief interventions, counselling, nicotine replacement strategies, prescription medications or a combination. Extra effort should be made to target these groups including those of lower socioeconomic status, minority groups and those with a history of mental illness and/or substance use disorders. Whilst smoking cessation deserves our continued attention we should also, ideally, make every effort to focus on prevention and in turn, truly impact the burden of avoidable disease.

Alcohol

Whilst our patients are familiar with the negative effects of smoking, the impact and loss of health attributable to alcohol is less well appreciated. Indeed, alcohol is one of the most widely-used, socially-acceptable drugs consumed across the world. Although in the past, some studies have supported moderate health benefits to low alcohol consumption such as for ischaemic heart disease, the adverse effects of alcohol are becoming increasingly obvious and the original claims for any benefits have been called into question.²⁸

Instead, emerging evidence reports alcohol use as having a very significant effect on the burden of disease globally with more than 60 acute and chronic diseases being attributable to alcohol.

The most compelling data comes from the *Lancet* report published in 2018 which noted alcohol as the leading risk factor for premature death and disability for those aged 15–49 years with 10% of global deaths attributable to alcohol for this age group.²⁸ The message is clearly stated: the safest level of alcohol consumed is zero. It calls for a change in global policy to achieve lower alcohol consumption in order to protect the future health of the world's population.

Acutely, alcohol can reduce sleep latency and hasten sleep initiation, however, it will also adversely affect the quality and depth of sleep leading to fatigue and decreased productivity the next day. Alcohol is classified as a depressant and there is a strong relationship with injury, violence, domestic abuse, deliberate self-harm and risky sexual behaviours.

Chronic use and misuse of alcohol affects every system of the body with some of the most well-known health effects including fatty liver, cirrhosis, hypertension and pancreatitis as well as detrimental behavioural effects and social disadvantages.

A note on alcohol and cancer

There is strong scientific consensus that alcohol can cause many types of cancer and as such, it has been listed as a group 1 'known' human carcinogen. A report on the global burden of cancer worldwide confirmed 4.1% of cancer diagnoses were attributable to alcohol consumption.²⁹

Its effects on the development of head and neck cancers, oesophageal cancer, gastric cancer, breast and colorectal cancer as well as other types of cancers are well-documented and its synergistic effect with cigarette smoking is also well established. Drinking any amount of alcohol, even in low levels³⁰ can increase cancer risk

though the level of risk is linked with increasing consumption. Several biological mechanisms are thought to be involved – such as damage from acetaldehyde, altered hormone regulation and folate deficiency. Alcohol is also high in its energy content with 7 kcal/gram and as such, is associated with weight gain and obesity thus explaining its contribution to weight-related cancers.³¹

An alcohol history should feature in all Lifestyle Medicine consultations and screening tools – such as AUDIT C – can be used where concerns of misuse or addiction are raised. Patients should be supported in their efforts to reduce their alcohol intake with referrals being made to local support groups or specialist services where appropriate and possible. Any counselling should be patient-centred, delivered with compassion and without judgement.

Pillar 6: Social connections

Positive relationships and a strong support system are vital for both physical and emotional health.

Some of the most fascinating research on the impact of healthy lifestyles has come from those living in areas coined 'the Blue Zones'. These are five regions of the world – Okinawa, Japan; Sardinia, Italy; Nicoya, Costa Rica; Ikaria, Greece; and Loma Linda, California – where people are living the longest, healthiest lives – often beyond their 100th year and without disease. Inhabitants of these regions share in common several healthy lifestyle habits such as a plant-predominant diet and regular physical activity. Inhabitants also demonstrate how social behaviour has a positive impact on health. One of the key components of the Blue Zones is that they share a strong sense of community and close support groups. In this case, their social networks have a very positive influence on health. It is worth noting that the opposite effect is seen in other groups. For example, some social networks will have a negative effect

on health by facilitating or normalising unhealthy behaviours such as smoking. Indeed, it has been shown that obese people were more likely to have social networks of family and friends who were also obese.³²

As such, we increasingly recognise the importance of positive relationships and a strong social support system – they are significant determinants of health and vital for both physical and emotional wellbeing. Research supports this and has also documented its benefits for lowering inflammation³³ and improving metabolic health³⁴ as well as reducing incidence of acute myocardial infarction and stroke.³⁵

Social interactions also have an important effect on brain health. They involve many complex cognitive processes such as face recognition, focus, attention and a variety of communication skills as well as emotional expression. They are thought therefore, to increase cognitive reserve and as such, have been associated with a reduced risk of dementia. Research has shown that social isolation can double your risk of dementia in later life.³⁶

Loneliness

Loneliness is different from the physical state of social isolation. It is instead, a complex emotional state of which there have been various definitions including ‘the negative perception of being alone and disconnected’ and is much more to do with perceived isolation rather than objective isolation.³⁷ The impact of loneliness on health is irrefutable. People who are lonely use health care services more frequently yet are also more likely to suffer from – and find it more difficult to recover from – both acute and chronic illness.

Historical data on loneliness is negligible but there is plenty of evidence which now suggests levels of loneliness are increasing amongst many populations. Whilst commonly recognised in elderly people, loneliness is now more prevalent in

younger populations across the world.³⁸

Lifestyle Medicine can offer positive connections

It is well understood then that as humans, we desire acceptance and crave belonging. Studies have shown positive connections and strong sense of community favourably affects health outcomes and can drive healthy habits. In order to fully support our patients, we must screen for social aspects including loneliness. We can then work with them to understand this connection to their health and thereafter, try to increase their social engagement and facilitate quality connections.

Conclusion: The future of Lifestyle Medicine

One of the most important and useful approaches for rippling out a Lifestyle Medicine approach will be integrating Lifestyle Medicine into the medical school curricula. This is starting to gain momentum and certainly in the US, advances have been made with wide reporting of medical schools increasing their uptake of Lifestyle Medicine curricula as well as assessments and residency programmes for postgraduates. Active student interest groups are also forming within medical schools further driving the enthusiasm for the subject.

To date, research has confirmed that medical students, universally, receive inadequate training on nutrition with one study citing 70% of medics reporting less than two hours of training.³⁹ Similar research also confirms that a significant number of final year medical students remain unaware of the physical activity guidelines⁴⁰ with only 8.4% of students feeling adequately trained to give physical activity advice to the general population. However, 91.1% said they would like more formal training on physical activity.⁴¹ This

highlights both the need and desire for Lifestyle Medicine societies and colleges to work closely with medical schools.

Certainly, delivering Lifestyle Medicine in either virtual or in person format will make important strides in efforts to prevent and treat non-communicable disease with an effective, sustainable and scalable way to educate future physicians and indeed, all other healthcare professionals. Whilst curricula are being built, other effective strategies may include student interest groups, workshops, electives and specialist study modules.

In the meantime, the Lifestyle Medicine Global Alliance (LMGA) – founded by the American College of Lifestyle Medicine in 2015 – continues its mission to unite all Lifestyle Medicine professional associations. This international convergence of aligned healthcare professionals will spur on the movement of Lifestyle Medicine with the hope of eradicating lifestyle-related diseases. This united front – which spans low-, middle- and high-income countries – will allow for the much needed positive change in the medical system and in our patients' lives all around the world.

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